



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 221031-0228; RTID 0648-XR125]

Endangered and Threatened Wildlife; 90-Day Finding on a Petition to List Great Hammerhead Shark as a Threatened or Endangered Species

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; 90-day petition finding.

SUMMARY: We, NMFS, announce a 90-day finding on a petition to list the great hammerhead shark (*Sphyrna mokarran*) as threatened or endangered under the Endangered Species Act (ESA) and to designate critical habitat. We find that the petition does not present substantial scientific or commercial information indicating that the petitioned action may be warranted.

ADDRESSES: Copies of the petition and related materials are available from the NMFS website at <https://www.fisheries.noaa.gov/national/endangered-species-conservation/negative-90-day-findings>.

FOR FURTHER INFORMATION CONTACT: Maggie Miller, NMFS Office of Protected Resources, (301) 427-8457, Margaret.h.miller@noaa.gov.

SUPPLEMENTARY INFORMATION:

Background

On June 16, 2022, we received a petition from the Center for Biological Diversity (CBD) to list the great hammerhead shark as a threatened or endangered species under the ESA and to designate critical habitat concurrent with the listing. We have previously reviewed the status of the great hammerhead shark for listing under the ESA as a result of two petitions received in 2012 and 2013. We completed a comprehensive status review of

the great hammerhead shark in response to these petitions, and based on the best scientific and commercial information available, including the status review report (Miller *et al.* 2014), we determined that the species was not comprised of distinct population segments (DPSs), was not currently in danger of extinction throughout all or a significant portion of its range, and was not likely to become so within the foreseeable future. Therefore, on June 11, 2014, we published a final determination, the 12-month finding, that the great hammerhead shark did not warrant ESA listing (79 FR 33509).

ESA Statutory, Regulatory, and Policy Provisions and Evaluation Framework

Section 4(b)(3)(A) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*), requires, to the maximum extent practicable, that within 90 days of receipt of a petition to list a species as threatened or endangered, the Secretary of Commerce makes a finding on whether that petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted, and promptly publish such finding in the **Federal Register** (16 U.S.C. 1533(b)(3)(A)). When it is found that substantial scientific or commercial information in a petition indicates the petitioned action may be warranted (a “positive 90-day finding”), we are required to promptly commence a review of the status of the species concerned during which we will conduct a comprehensive review of the best available scientific and commercial information. In such cases, we conclude the review with a finding as to whether, in fact, the petitioned action is warranted within 12 months of receipt of the petition. Because the finding at the 12-month stage is based on a more thorough review that encompasses all the best data available, as compared to the narrower scope of review at the 90-day stage, a “may be warranted” finding does not prejudge the outcome of the status review.

Under the ESA, a listing determination may address a species, which is defined to also include subspecies and, for any vertebrate species, any DPS that interbreeds when mature (16 U.S.C. 1532(16)). A joint NMFS-U.S. Fish and Wildlife Service (USFWS)

(jointly, “the Services”) policy clarifies the agencies' interpretation of the phrase “distinct population segment” for the purposes of listing, delisting, and reclassifying a species under the ESA (61 FR 4722, February 7, 1996). A species, subspecies, or DPS is “endangered” if it is in danger of extinction throughout all or a significant portion of its range, and “threatened” if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (ESA sections 3(6) and 3(20), respectively, 16 U.S.C. 1532(6) and (20)). Pursuant to the ESA and our implementing regulations, we determine whether species are threatened or endangered based on any one or a combination of the following section 4(a)(1) factors: (1) the present or threatened destruction, modification, or curtailment of habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms to address identified threats; (5) or any other natural or manmade factors affecting the species' existence (16 U.S.C. 1533(a)(1), 50 CFR 424.11(c)).

ESA-implementing regulations issued jointly by the Services (50 CFR 424.14(h)(1)(i)) define “substantial scientific or commercial information” in the context of reviewing a petition to list, delist, or reclassify a species as credible scientific or commercial information in support of the petition's claims such that a reasonable person conducting an impartial scientific review would conclude that the action proposed in the petition may be warranted. Conclusions drawn in the petition without the support of credible scientific or commercial information will not be considered “substantial information.” In reaching the initial (90-day) finding on the petition, we will consider the information described in sections 50 CFR 424.14(c), (d), and (g) (if applicable) and may also consider information readily available at the time the determination is made (50 CFR 424.19(h)(ii)).

Our determination as to whether the petition provides substantial scientific or commercial information indicating that the petitioned action may be warranted will depend in part on the degree to which the petition includes the following types of information: (1) current population status and trends and estimates of current population sizes and distributions, both in captivity and the wild, if available; (2) identification of the factors under section 4(a)(1) of the ESA that may affect the species and where these factors are acting upon the species; (3) whether and to what extent any or all of the factors identified in section 4(a)(1) of the ESA, alone or in combination, may cause the species to be an endangered species or threatened species (*i.e.*, the species is currently in danger of extinction or is likely to become so within the foreseeable future), and, if so, how high in magnitude and how imminent the threats to the species and its habitat are; (4) adequacy of regulatory protections and effectiveness of conservation activities by States as well as other parties, that have been initiated or that are ongoing, that may protect the species or its habitat; and (5) a complete, balanced representation of the relevant facts, including information that may contradict claims in the petition (50 CFR 424.14(d)).

We may also consider information readily available at the time the determination is made (50 CFR 424.14(h)(1)(ii)). We are not required to consider any supporting materials cited by the petitioner if the petitioner does not provide electronic or hard copies, to the extent permitted by U.S. copyright law, or appropriate excerpts or quotations from those materials (*e.g.*, publications, maps, reports, letters from authorities) (50 CFR 424.14(c)(6)).

The “substantial scientific or commercial information” standard must be applied in light of any prior reviews or findings we have made on the listing status of the species that is the subject of the petition. Where we have already conducted a finding on, or review of, the listing status of that species (whether in response to a petition or on our

own initiative), we will evaluate any petition received thereafter seeking to list, delist, or reclassify that species to determine whether a reasonable person conducting an impartial scientific review would conclude that the action proposed in the petition may be warranted despite the previous review or finding. Where the prior review resulted in a final agency action—such as a final listing determination, 90-day not-substantial finding, or 12-month not-warranted finding—a petition will generally not be considered to present substantial scientific and commercial information indicating that the petitioned action may be warranted unless the petition provides new information or analysis not previously considered (50 CFR 424.14(h)(1)(iii)).

At the 90-day finding stage, we do not conduct additional research, and we do not solicit information from parties outside the agency to help us in evaluating the petition. We will accept the petitioners' sources and characterizations of the information presented if they appear to be based on accepted scientific principles, unless we have specific information in our files that indicates the petition's information is incorrect, unreliable, obsolete, or otherwise irrelevant to the requested action. Information that is susceptible to more than one interpretation or that is contradicted by other available information will not be dismissed at the 90-day finding stage, so long as it is reliable and a reasonable person conducting an impartial scientific review would conclude it supports the petitioners' assertions. In other words, conclusive information indicating the species may meet the ESA's requirements for listing is not required to make a positive 90-day finding. We will not conclude that a lack of specific information alone necessitates a negative 90-day finding if a reasonable person conducting an impartial scientific review would conclude that the unknown information itself suggests the species may be at risk of extinction presently or within the foreseeable future.

To make a 90-day finding on a petition to list a species, we first evaluate whether the petition presents substantial scientific or commercial information indicating the

subject of the petition may constitute a “species” eligible for listing under the ESA. If so, we evaluate whether the information indicates that the species may face an extinction risk such that listing, delisting, or reclassification may be warranted; this may be indicated in information expressly discussing the species’ status and trends, or in information describing impacts and threats to the species. We evaluate whether the petition presents any information on specific demographic factors pertinent to evaluating extinction risk for the species (*e.g.*, population abundance and trends, productivity, spatial structure, age structure, sex ratio, diversity, current and historical range, habitat integrity or fragmentation), and the potential contribution of identified demographic risks to extinction risk for the species. We then evaluate whether the petition presents information suggesting potential links between these demographic risks and the causative impacts and threats identified in section 4(a)(1) of the ESA.

Information presented on impacts or threats should be specific to the species and should reasonably suggest that one or more of these factors may be operative threats that act or have acted on the species to the point that it may warrant protection under the ESA. Broad statements about generalized threats to the species, or identification of factors that could negatively impact a species, do not constitute substantial information indicating that listing may be warranted. We look for information indicating that not only is the particular species exposed to a factor, but that the species may be responding in a negative fashion; then we assess the potential significance of that negative response.

Many petitions identify risk classifications made by nongovernmental organizations, such as the International Union for Conservation of Nature (IUCN), the American Fisheries Society, or NatureServe, as evidence of extinction risk for a species. Risk classifications by other organizations or made under other Federal or state statutes may be informative, but such classification alone will not provide a sufficient rationale for a positive 90-day finding under the ESA. For example, as explained by NatureServe,

their assessments of a species' conservation status do “not constitute a recommendation by NatureServe for listing under the U.S. Endangered Species Act” because NatureServe assessments “have different criteria, evidence requirements, purposes and taxonomic coverage than government lists of endangered and threatened species, and therefore these two types of lists should not be expected to coincide”

(<https://explorer.natureserve.org/AboutTheData/DataTypes/ConservationStatusCategories>). Additionally, species classifications under IUCN and the ESA are not equivalent; data standards, criteria used to evaluate species, and treatment of uncertainty are also not necessarily the same. Thus, when a petition cites such classifications, we will evaluate the source of information that the classification is based upon in light of the standards on extinction risk and impacts or threats discussed above.

Analysis of Petition

We have reviewed the petition, the literature cited in the petition, and other literature and information readily available in our files. The petitioners mainly assert that the recent 2019 IUCN assessment of the great hammerhead shark (Rigby *et al.* 2019), which designated the global species as “critically endangered,” means that the species satisfies the listing criteria under the ESA.

As discussed above, we must evaluate any petition seeking to list a species in light of any prior reviews or findings we have already made on the species that is the subject of the petition (50 CFR 424.14(h)(1)(iii)). Because our previous review resulted in a final agency action finding that the great hammerhead shark was not in danger of extinction throughout all or a significant portion of its range, and was not likely to become so within the foreseeable future, we considered whether the petition provides new information or a new analysis not previously considered. Unless the petition provides credible new information, identifies errors, or provides a credible new analysis, the petition generally would not be considered to present substantial information

indicating that the petitioned action may be warranted (50 CFR 424.14(h)(1)(iii)). Below, we address the main points made in the petition, including the information used by the 2019 IUCN assessment (Rigby *et al.* 2019), and discuss whether this information was considered in our status review report (Miller *et al.* 2014) and 12-month finding for the great hammerhead shark (79 FR 33509, June 11, 2014), or instead is credible new information.

Population Status and Trends

The petitioner discusses the 2019 IUCN assessment of the great hammerhead population (Rigby *et al.* 2019), stating that the assessment found a global population reduction of >80 percent over three generation lengths (71.1–74.4 years), with particularly steep declines in the Indian Ocean (median reduction of 99.3 percent over three generation lengths). There were three data sources that the IUCN assessment used to determine the overall global population reduction. Two of these data sources, the Indian Ocean data (Dudley and Simpfendorfer 2006) and the North Atlantic data (Jiao *et al.* 2011) were both analyzed in our great hammerhead shark status review report (Miller *et al.* 2014) that preceded and provided the basis for the 2014 finding. As such, this is not new information that would indicate a change in the status of the species. The third data source in the IUCN assessment (J. Carlson unpublished data), which was not considered in our status review report, provided new and additional North Atlantic information that showed an *increase* in median population change of great hammerhead sharks over three generation lengths. As such, that data supported classification of the great hammerhead shark in the IUCN Red List category of Least Concern (see Rigby *et al.* 2019: Supplementary Information) and does not constitute new information that would indicate the petitioned action may be warranted. Additionally, NMFS is currently undertaking a stock assessment for the great hammerhead shark in U.S. Atlantic waters as part of the SouthEast Data, Assessment, and Review (SEDAR) cooperative process for hammerhead

sharks. Based on the SEDAR Workshop Working Papers (publicly available at: <https://sedarweb.org/assessments/sedar-77>), a preliminary examination of trends in abundance from five data sources, including the ones in Rigby *et al.* (2019), indicates that since 1994 the population is increasing at about 2 percent per year.

The petition also noted steep declines of hammerheads in the Mediterranean Sea, referencing Ferretti *et al.* (2008); however, again, this study was considered in our status review report of the great hammerhead shark (Miller *et al.* 2014). Within the status review report, we noted that although Ferretti *et al.* (2008) has been referenced as a study that estimated a decline of >99.99 percent in *Sphyrna* spp. abundance and biomass, the authors acknowledge that they could only assess *S. zygaena*, or smooth hammerhead shark. Great hammerhead sharks are essentially rare in the Mediterranean Sea and are considered a transient species (Miller *et al.* 2014). As such, the information that the petition provided does not apply to the great hammerhead shark species.

In conclusion, information readily available in our files suggests the great hammerhead shark population is increasing in the U.S. Atlantic region, which provides important context for judging the accuracy and reliability of the information presented in the petition. Further, the petition does not provide any credible new information that was not already considered in our great hammerhead shark status review report (Miller *et al.* 2014) supporting the prior not warranted finding or otherwise offer substantial information that would suggest that the species' current population status and trends may warrant the petitioned action.

Information on Impacts and Threats to the Species

Next, we evaluated whether the information in the petition, viewed in context of information readily available in our files concerning the extent and severity of one or more of the ESA section 4(a)(1) factors, credibly suggests these impacts and threats may be posing a risk of extinction for the great hammerhead shark. The petition states that

four of the five general causal factors in section 4(a)(1) of the ESA are adversely affecting the continued existence of the great hammerhead shark: (A) present or threatened destruction, modification, or curtailment of habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (D) inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. In the following sections, we use the information presented in the petition and in our files to determine whether the petitioned action may be warranted.

Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

First, the petition incorrectly identifies the great hammerhead shark as a “benthopelagic” species, not a coastal-pelagic and semi-oceanic species (79 FR 33509, June 11, 2014). The petition states that as a benthopelagic species, the great hammerhead shark occupies most of the water column and is vulnerable to human activities from the surface to the seafloor. The petition cites the reference of Thoburn *et al.* (2019) to support that statement; however, this reference is about tope sharks (*Galeorhinus galeus*), not great hammerhead sharks. The petition also states that great hammerhead sharks are considered highly susceptible to anthropogenic pressures near coastlines and in offshore environments but references Leonetti *et al.* (2020), which also mentions tope sharks and is about sharks and rays in the Mediterranean. As mentioned above, great hammerhead sharks are rare or a transient species in the Mediterranean, and the petition contains no information that suggests that the great hammerhead shark is similar to the species analyzed in Leonetti *et al.* (2020) nor supports an inference that the great hammerhead shark specifically is “highly susceptible” to unspecified anthropogenic pressures near coastlines or in offshore environments of the Mediterranean or anywhere else. Therefore the petition statements are not supported by credible scientific or commercial

information. Such unsupported conclusions are not considered “substantial information” under our regulations (50 CFR 424.14(h)(1)(i)).

The petition also states that climate change and coastal development are especially harmful to the great hammerhead shark given the species’ dependence on tropical and sub-tropical coral reefs; however, as noted in our great hammerhead shark status review report (Miller *et al.* 2014), great hammerhead sharks do not show any dependence on coral reefs. The petition also did not provide any reference for that statement. The petition proceeds to suggest that global climate change, ocean warming, ocean acidification, habitat degradation and destruction associated with coastal and ocean development, and human-caused impacts on important coral reef habitats are putting the great hammerhead shark at a greater risk of extinction. However, the petition fails to provide any species-specific information on the impacts of these developments on the great hammerhead shark. The petition mentions that both ocean warming and ocean acidification are wreaking havoc on reef ecosystems worldwide and threatening coral reef habitats, including those that purportedly provide important habitat for great hammerhead sharks, but does not provide any references that discuss or identify the specific great hammerhead shark habitat that may be impacted. As mentioned in our great hammerhead shark status review report (Miller *et al.* 2014), the great hammerhead shark is a circumtropical species that lives in coastal-pelagic and semi-oceanic waters from latitudes of 40°N to 31°S. It occurs over continental shelves as well as adjacent deep waters, and while it may also be found in coral reefs and lagoons, there is no information presented in the petition that suggests, contrary to the prior status review report, that reef ecosystems worldwide are important habitats for the species.

The petition also states that ocean acidification threatens the great hammerhead shark directly but provides no references or scientific evidence that supports this statement. Rather, the petition cites Dixson *et al.* (2014), Rosa *et al.* (2017), Piestevos *et*

al. (2015) and Dziergwa *et al.* (2019), which are studies that examine the effects of ocean acidification on different species of sharks, but not the great hammerhead shark. Dixon *et al.* (2014) examined the smooth dogfish (*Mustelus canis*), Rosa *et al.* (2017) examined 10 benthic shark species, Piestevos *et al.* (2015) examined the temperate Port Jackson shark (*Heterodontus portusjacksoni*), and Dziergwa *et al.* (2019) examined a demersal shark species, Puffadder shyshark (*Haploblepharus edwardsii*). Clearly, none of these shark species (which are demersal, benthic, and temperate) share similar habitat conditions as the great hammerhead shark, a coastal-pelagic and semi-oceanic shark. Additionally, none of the referenced papers suggest the shark species discussed are biologically similar to the great hammerhead shark. The status review report, on the other hand, discussed a paper (Chin *et al.* 2010) that examined climate change factors, including ocean acidification, on great hammerhead sharks on Australia's Great Barrier Reef, and found that great hammerhead sharks were ranked as having a low overall vulnerability to climate change, with low vulnerability to each of the assessed climate change factors, including ocean acidification (Miller *et al.* 2014). As such, the referenced studies do not constitute substantial information to support the petition's statement regarding the threat of ocean acidification to the great hammerhead shark species.

The petition also claims that habitat degradation and destruction associated with coastal and ocean development, specifically the placement of high voltage subsea cables, threatens the great hammerhead shark with extinction. This information appears to have been copied from a separate petition (pertaining to the tope shark) and does not provide any evidence of high voltage direct current subsea cables negatively impacting the great hammerhead shark. The petition references the IUCN tope shark assessment (Walker *et al.* 2020), which does not mention great hammerhead shark impacts from any subsea cables, and also references Taormina *et al.* (2018) and Carter *et al.* (2009), neither of which addresses great hammerhead shark impacts.

Overall, the petition fails to present credible, accurate information to constitute substantial scientific or commercial information indicating that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to the great hammerhead shark.

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The petition relies solely on the IUCN assessment of the great hammerhead shark (Rigby *et al.* 2019), specifically the global population reduction, as support for its statement that dramatic declines of the species around the world are evidence that overexploitation is a threat posed to the species. However, the petition does not provide any new information specific to the species that was not already considered in our great hammerhead shark status review report (Miller *et al.* 2014). As stated above, there were only three data sources that the IUCN assessment used to determine the overall global population reduction, and two of these data sources, the Indian Ocean data (Dudley and Simpfendorfer 2006) and one for the North Atlantic (Jiao *et al.* 2011) were both analyzed in our great hammerhead status review report (Miller *et al.* 2014). The third data source, which was not considered in the status review report (J. Carlson unpublished data; see Rigby *et al.* 2019: Supplementary Information), actually showed an increase in median population change of great hammerhead sharks, over three generation lengths, in the North Atlantic. As such, this supports our conclusion from the 12-month finding (79 FR 33509, June 11, 2014) that there is no evidence that overutilization, by itself, is a threat that is currently placing the species at an increased risk of extinction. The severity of the threat of overutilization is dependent upon other risks and threats to the species, such as its abundance (as a demographic risk) as well as its level of protection from fishing mortality throughout its range; however, the petition does not provide any credible new information or otherwise offer substantial scientific or commercial information suggesting the species is at or near a level of abundance that places its current or future

persistence at risk due to overutilization. Therefore, we conclude the petition does not present substantial scientific information indicating that listing may be warranted due to overutilization for commercial, recreational, scientific, or educational purposes.

Inadequacy of Existing Regulatory Mechanisms

The petition states that current conservation regulations are ineffective to ensure the survival of the great hammerhead shark, yet does not provide any reference or new evidence of the ineffectiveness of current regulatory mechanisms. The petition mentions many of the Regional Fisheries Management Organizations (RFMOs) (*i.e.*, International Commission for the Conservation of Atlantic Tunas (ICCAT), Inter-American Tropical Tuna Commission, Western and Central Pacific Fisheries Commission, and General Fisheries Commission for the Mediterranean) and their implementation of prohibitions, the designation of great hammerhead sharks as a priority for conservation and management, as well as the defeat of proposals to ban hammerhead landings or set fishing limits. The petition also mentions the addition of great hammerhead sharks to Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. However, these conservation regulations were also evaluated in our great hammerhead shark status review report (Miller *et al.* 2014) and 12-month finding (79 FR 33509, June 11, 2014). The petition also states that the ICCAT adopted the recommendation prohibiting retention, transshipment, landing, and sale of great hammerheads (and other hammerhead species) for ICCAT fisheries operating in the Convention Area, but it has not prevented the continued decline of the species in the Convention Area. However, as mentioned previously, this statement is not supported. Moreover, the petition did not provide any evidence of a decline, and the IUCN assessment of great hammerhead sharks (Rigby *et al.* 2019) actually showed a potential increase in median population change of great hammerhead sharks over three generation

lengths in the North Atlantic (J. Carlson unpublished data), which is part of the ICCAT Convention Area.

The petition proceeds to state that national regulations are also inadequate to protect the great hammerhead shark from extinction; however, again, the petition does not provide any evidence of the ineffectiveness of current regulatory mechanisms affecting the great hammerhead shark's status or provide new information that was not already considered in our great hammerhead shark status review report (Miller *et al.* 2014) and 12-month finding (79 FR 33509, June 11, 2014). In terms of our national regulations, and as stated in the 12-month finding (79 FR 33509, June 11, 2014), we found that U.S. conservation and management measures are adequate in decreasing the extinction risk of the great hammerhead shark by minimizing demographic risks (preventing further abundance declines) and the threat of overutilization (strictly managing and monitoring sustainable catch rates) currently and in the foreseeable future. This has been further confirmed by new information in our files, which, as mentioned above, shows that our preliminary examination of great hammerhead shark trends in abundance in the U.S. Atlantic indicates that since 1994 the population is increasing at about 2 percent per year (<https://sedarweb.org/assessments/sedar-77/>).

As such, the petition fails to present credible new information, or otherwise offer substantial scientific or commercial information indicating that the inadequacy of existing regulatory mechanisms is a threat to the great hammerhead shark.

Other Natural or Manmade Factors Affecting Its Continued Existence

The petition states that exposure to and bioaccumulation of dichlorodiphenyltrichloroethane (DDT) and other pollutants and contaminants likely have played a role in the decline of the great hammerhead shark or can increase the species' risk of extinction. However, none of the references or information provided by the petition examined pollutant or contaminant levels within the great hammerhead shark.

The petition also failed to provide any evidence of a decline in the species due to pollutants or contaminants.

Our prior finding, which considered whether the potential bioaccumulation of toxins and metals was contributing to the extinction risk for the great hammerhead shark, determined based on the best available scientific and commercial information that this was not significantly contributing to the species' extinction risk (79 FR 33518, June 11, 2014). Due to the absence of any information in the petition to support extrapolating the referenced studies to the great hammerhead shark and provide some indication that these constituents may be affecting this species' abundance, the statements in the petition are nothing more than unsupported conclusions. As such, the petition fails to present credible new information or otherwise offer substantial scientific or commercial information indicating that other natural or manmade factors are a threat to the great hammerhead shark.

Similarity of Appearance Listing

The petition also requested that the great hammerhead shark be listed due to its similarity of appearance to the scalloped hammerhead shark (*Sphyrna lewini*), a species protected by the ESA since 2014 (79 FR 38213, July 3, 2014); however, the petition does not provide any credible new information or otherwise offer substantial scientific or commercial information that was not previously considered in our 12-month finding for the great hammerhead shark, which already considered the statutory factors regarding similarity of appearance (79 FR 33509, June 11, 2014).

Section 4 of the ESA (16 U.S.C. 1533(e)) provides that the Secretary may treat any species as an endangered or threatened species even though it is not listed pursuant to section 4 of the ESA when the following three conditions are satisfied: (1) Such species so closely resembles in appearance, at the point in question, a species which has been listed pursuant to such section that enforcement personnel would have substantial

difficulty in attempting to differentiate between the listed and unlisted species; (2) the effect of this substantial difficulty is an additional threat to an endangered or threatened species; and (3) such treatment of an unlisted species will substantially facilitate the enforcement and further the policy of this chapter (16 U.S.C. 1533(e)(A)-(C)).

Although the great hammerhead shark and scalloped hammerhead shark have similar features (such as a unique head shape), the petition does not provide any references or new information that indicates our enforcement personnel have substantial difficulty in differentiating the two species. The great hammerhead shark is the largest of the hammerhead shark species, and was noted to reach lengths of up to 610 cm total length (TL) (Compagno 1984); although recent sizes have decreased in the species. Based on information in our great hammerhead shark status review report (Miller *et al.* 2014), the largest great hammerhead shark captured during a study in the northwestern Atlantic Ocean and Gulf of Mexico was of 415 cm TL (Piercy *et al.* 2010). Piercy *et al.* (2010) also noted sizes of up to 445 cm TL off northern Australia and ~400 cm TL off South Africa for great hammerhead sharks. On the other hand, observed maximum sizes of scalloped hammerhead sharks are smaller and range from 331-346 cm TL (Stevens and Lyle 1989, Chen *et al.* 1990). In addition to their sizes, the shapes of their head are also distinctive and aid in the differentiation of the two species. In the great hammerhead shark, the front margin of the head is nearly straight, forming a “T-shape,” with a shallow notch in the middle, whereas the scalloped hammerhead shark has a broadly arched head, with distinct indentations in the center as well as on either side of the middle notch.

As stated in our 12-month finding (79 FR 33509, June 11, 2014), the fins of these two species can also be distinguished without difficulty. The great hammerhead shark has a very tall, distinctive, crescent-shaped first dorsal fin whereas the first dorsal fin of a scalloped hammerhead shark is shorter and has a rounded apex (Abercrombie *et al.*, 2013). According to a genetic study that examined the concordance between assigned

Hong Kong market categories and the corresponding fins, the great hammerhead market category “Gu pian” had an 88 percent concordance rate, indicating that traders can accurately identify and separate great hammerhead shark fins from the other hammerhead species (Abercrombie *et al.* 2005, Clarke *et al.* 2006).

Given the distinctive head and body characteristics of the great hammerhead shark and the scalloped hammerhead shark, and evidence that fins of the species can also be accurately identified and separated, we are aware of no evidence to suggest that enforcement personnel may have substantial difficulties in attempting to differentiate between the great hammerhead shark and the scalloped hammerhead shark. Therefore, we do not find that the petition presents any new or substantial scientific or commercial information indicating that a similarity of appearance listing may be warranted at this time.

Petition Finding

We thoroughly reviewed the information presented in the petition, in context of information readily available in our files, and found that it does not provide any credible new information regarding great hammerhead sharks or otherwise offer substantial information not already considered in our status review report of the great hammerhead shark (Miller *et al.* 2014) and 12-month finding (79 FR 33509, June 11, 2014). As such, we find that the petition does not present substantial scientific or commercial information indicating that the petitioned action may be warranted.

References Cited

A complete list of all references cited herein is available upon request (See **FOR FURTHER INFORMATION CONTACT**).

Authority: The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: November 1, 2022.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

[FR Doc. 2022-24306 Filed: 11/7/2022 8:45 am; Publication Date: 11/8/2022]